WHAT IS CLAIMED IS:

1. A method of selecting a frequency band for use in wireless packet communications between wireless packet communication transceivers, comprising:

a first wireless packet communication transceiver transmitting over a wireless communication link a plurality of probe packets respectively on a plurality of probe frequencies within an available frequency bandwidth;

a second wireless packet communication transceiver receiving the probe packets and obtaining therefrom information indicative of frequency channel quality associated with the plurality of frequencies;

using the frequency channel quality information to produce information indicative of frequency band quality associated with a plurality of frequency bands within the available frequency bandwidth; and

based on the frequency band quality information, selecting one of the frequency bands for use in wireless packet communications between the first and second wireless packet communication transceivers.

2. The method of Claim 1, wherein the selected frequency band includes a plurality of said probe frequencies.

3. The method of Claim 1, wherein said probe frequencies are distributed across the available frequency bandwidth.

4. The method of Claim 3, wherein said probe frequencies are distributed evenly across the available frequency bandwidth.

5. The method of Claim 3, wherein the distribution of probe frequencies across the available frequency bandwidth corresponds to a total number of probe packets in said plurality of probe packets.

6. The method of Claim 1, wherein said transmitting step includes the first wireless packet communication transceiver transmitting the probe packets sequentially on a corresponding sequence of said probe frequencies, and using a pseudo random sequence to determine the sequence of probe frequencies.

7. The method of Claim 6, wherein said last-mentioned using step includes using the pseudo random sequence to determine a sequence of frequency offset values from a predetermined set of frequency offset values, and adding each of the frequency offset values of the frequency offset sequence to a predetermined frequency to determine respectively the probe frequencies of said sequence of probe frequencies.

8. The method of Claim 7, wherein said frequency offset values of said predetermined set of frequency offset values are evenly distributed from a lowest of the frequency offset values to a highest of the frequency offset values.

9. The method of Claim 1, wherein said frequency channel quality information includes correlation information associated with known portions of the probe packets.

10. The method of Claim 1, including the second wireless packet communication transceiver performing said using step and said selecting step.

11. The method of Claim 1, including one of the wireless packet communication transceivers transmitting to the other of the wireless packet communication transceivers a plurality of selection packets which each include information indicative of the selected frequency band.

12. The method of Claim 11, wherein said last-mentioned transmitting step includes the second wireless packet communication transceiver transmitting the selection packets to the first wireless packet communication transceiver.

13. The method of Claim 11, wherein said last-mentioned transmitting step includes transmitting the plurality of selection packets sequentially on a sequence of respectively corresponding transmit frequencies, wherein said first-mentioned transmitting step includes the first wireless packet communication transceiver transmitting the probe packets sequentially on a corresponding sequence of said probe frequencies, and wherein said sequence of transmit frequencies is a portion of said sequence of probe frequencies.

14. A wireless packet communication apparatus, comprising:

an input for receiving information indicative of frequency channel quality associated with a plurality of probe frequencies which are within an available frequency bandwidth and on which a plurality of probe packets have respectively been received from another wireless packet communication apparatus via a wireless communication link;

a band quality determiner coupled to said input for using said frequency channel quality information to produce information indicative of frequency band quality associated with a plurality of frequency bands within the available bandwidth; and

a band selector coupled to said band quality determiner and responsive to said frequency band quality information for selecting one of said frequency bands for use in wireless packet communications with said another wireless packet communication apparatus.

15. The apparatus of Claim 14, including a controller coupled to said band selector for providing for transmission to said another wireless packet communication apparatus a plurality of selection packets which each include information indicative of the selected frequency band.

16. The apparatus of Claim 15, wherein said controller is operable for providing a plurality of corresponding transmit frequencies on which the respective select packets are to be transmitted to said another wireless packet communication apparatus.

17. The apparatus of Claim 15, wherein said controller is operable for providing, for use in receiving said probe packets, information indicative of said probe frequencies.

18. A wireless packet communication apparatus, comprising:

a controller for providing a plurality of probe packets and a corresponding plurality of probe frequencies which are within an available frequency bandwidth and on which the probe packets are to be transmitted via a wireless communication link to another wireless packet communication apparatus that is responsive to the probe packets

for selecting one of a plurality of frequency bands within the available frequency bandwidth for use in wireless packet communications between said wireless packet communication apparatus and said another wireless packet communication apparatus;

an output coupled to said probe controller for outputting said probe packets to the wireless communication link respectively on said probe frequencies; and

an input for receiving a selection packet which has been received from said another wireless packet communication apparatus via the wireless communication link and which includes information indicative of the selected frequency band.

19. The apparatus of Claim 18, including a mapper coupled to said input and responsive to said selected frequency band information for determining therefrom the selected frequency band.

20. The apparatus of Claim 18, wherein said input is for receiving a plurality of said selection packets and said controller is operable for providing information indicative of a plurality of frequencies on which the selection packets are to be respectively received.

21. The apparatus of Claim 18, wherein said plurality of probe frequencies are distributed across the available frequency bandwidth.

22. The apparatus of Claim 21, wherein said plurality of probe frequencies are distributed evenly across the available frequency bandwidth.

23. The apparatus of Claim 21, wherein said distribution of said probe frequencies across the available frequency bandwidth corresponds to a total number of probe packets in said plurality of probe packets.

24. A method of performing wireless communication between wireless communication transceivers, comprising:

for a first predetermined period of time, a first wireless communication transceiver transmitting predetermined information to a second wireless communication transceiver via a wireless communication link using a plurality of frequencies within an available frequency bandwidth;

the second wireless communication transceiver obtaining from the transmission of the first wireless communication transceiver information indicative of frequency channel quality associated with the plurality of frequencies;

the second wireless communication transceiver using the frequency channel quality information to select from the available frequency bandwidth a frequency band for use in communications between the first and second wireless communication transceivers;

for a second predetermined period of time, the second wireless communication transceiver transmitting to the first wireless communication transceiver via the wireless communication link information indicative of the selected frequency band; and

upon expiration of the second predetermined period, the first and second wireless communication transceivers communicating with one another via the wireless communication link using the selected frequency band.

25. The method of Claim 24, including the first and second wireless communication transceivers defining said first and second predetermined periods of time during an initial handshake between the first and second wireless communication transceivers.

26. The method of Claim 24, wherein said communicating step is performed at a higher data rate than said transmitting steps.

27. A method of choosing a communication parameter for use in wireless communications between wireless communication transceivers, comprising:

identifying within an available frequency bandwidth a plurality of frequency bands which each includes a plurality of available frequency channels between first and second wireless communication transceivers;

obtaining information indicative of fading parameters respectively associated with said frequency channels;

for each of said frequency bands, using the fading parameter information associated with the frequency channels thereof to produce band quality information indicative of frequency channel communication quality within the frequency band; and

based on the band quality information, selecting one of the frequency bands for use in wireless communications between the first and second wireless communication transceivers.

28. The method of Claim 27, wherein said obtaining step includes obtaining estimates of fading parameter amplitudes respectively associated with said frequency channels.

29. The method of Claim 28, wherein said obtaining step includes obtaining correlation values respectively associated with packets transmitted on the respective frequency channels, and taking the correlation values to be the fading parameter amplitude estimates.

30. The method of Claim 28, wherein said using step includes, for each of said frequency bands, summing squares of the fading parameter amplitude estimates associated with the frequency channels in the frequency band to produce a sum for the frequency band, and wherein said selecting step includes selecting the frequency band whose associated sum is the largest of said sums.

31. The method of Claim 28, wherein said using step includes, for each of said frequency bands, selecting the smallest of the fading parameter amplitude estimates associated with the frequency channels within the frequency band, and wherein said first-mentioned selecting step includes selecting the frequency band whose smallest fading parameter amplitude estimate is the largest of said smallest fading parameter amplitude estimates.

32. The method of Claim 28, wherein said using step includes, for each of said frequency bands, determining the smallest and largest of the fading parameter amplitude estimates associated with the frequency channels of the frequency band and, for each of said frequency bands, summing squares of the fading parameter amplitude estimates associated with the frequency channels of the frequency band to produce a sum for the frequency band, and identifying those frequency bands whose smallest and largest fading parameter amplitude estimates have a predetermined mutual relationship, and wherein said selecting step includes selecting from said identified frequency bands the frequency band whose associated sum is the largest of said sums.

33. The method of Claim 32, wherein said identifying step includes identifying every frequency band wherein a ratio of the smallest fading parameter amplitude estimate thereof to the largest fading parameter amplitude estimate thereof exceeds a predetermined threshold value.

34. The method of Claim 28, wherein said fading parameter amplitude estimates are correlation values respectively associated with packets transmitted on the respective frequency channels.

35. The method of Claim 27, including selecting modulation and channel coding for use in communications between the first and second wireless communication transceivers based on the band quality information associated with the selected frequency band.

36. The method of Claim 35, wherein said modulation is one of QPSK, 16-QAM and 8-PSK, and wherein said channel coding has a coding rate that is one of ⅓, ½, ⅔, ¾, ⅘, ⅚ and 1.

37. A wireless communication apparatus, comprising:

an input for receiving information indicative of fading parameters respectively associated with a plurality of frequency channels within an available frequency bandwidth for use in wireless communications with another wireless communication apparatus, said available frequency bandwidth including a plurality of frequency bands which each include a plurality of said frequency channels;

a band quality determiner coupled to said input and operable with respect to each of said frequency bands for using the fading parameter information associated with the frequency channels of said frequency band to produce band quality information indicative of frequency channel communication quality within said frequency band; and

a selector coupled to said band quality determiner for selecting, based on the band quality information, one of the frequency bands for use in wireless communications with said another wireless communication transceiver.

38. The apparatus of Claim 37, wherein said fading parameter information includes estimates of fading parameter amplitudes respectively associated with said frequency channels.

39. The apparatus of Claim 38, wherein said fading parameter amplitude estimates are correlation values respectively associated with packets transmitted on the respective frequency channels.

40. The apparatus of Claim 37, including a mapper coupled to said selector for receiving the band quality information associated with the selected frequency band and mapping the received band quality information into modulation and channel coding for use in communications with said another wireless communication transceiver.

41. The apparatus of Claim 40, wherein said modulation is one of QPSK, 16-QAM and 8-PSK, and wherein said channel coding has a coding rate that is one of ⅓ ½, ⅔, ¾, ⅘, ⅚ and 1.

42. The apparatus of Claim 38, wherein said band quality determiner is operable, for each of said frequency bands, to sum squares of the fading parameter amplitude estimates associated with the frequency channels in the frequency band to produce a sum for the frequency band, and wherein said selector is operable for selecting the frequency band whose associated sum is the largest of said sums.

43. The apparatus of Claim 38, wherein said band quality determiner is operable, for each of said frequency bands, to select the smallest of the fading parameter amplitude estimates associated with the frequency channels within the frequency band, and wherein said selector is operable for selecting the frequency band whose smallest fading parameter amplitude estimate is the largest of said smallest fading parameter amplitude estimates.

44. The apparatus of Claim 38, wherein said band quality determiner is operable, for each of said frequency bands, to determine the smallest and largest of the fading parameter amplitude estimates associated with the frequency channels of the frequency band and, for each of said frequency bands, to sum squares of the fading parameter amplitude estimates associated with the frequency channels of the frequency band to produce a sum for the frequency band, said band quality determiner further operable for identifying those frequency bands whose smallest and largest fading parameter amplitude estimates have a predetermined mutual relationship, and wherein said selector is operable for selecting from said identified frequency bands the frequency band whose associated sum is the largest of said sums.

45. The apparatus of Claim 44, wherein said selector is operable for identifying every frequency band wherein a ratio of the smallest fading parameter amplitude estimate thereof to the largest fading parameter amplitude estimate thereof exceeds a predetermined threshold value.

46. The method of Claim 1, wherein at least one of the probe packets is a normal traffic packet from the first wireless packet communication transceiver to the second wireless packet communication transceiver.